

WHITE PAPER

ENHANCING ATTENDING PHYSICIAN
OCCUPATIONAL HEALTH EXPERTISE

OCCUPATIONAL HEALTH SERVICES BUILDING BLOCK NO. 4
DRAFT—work in progress

September 21, 2000

Introduction

Over the last two decades, the state-of-the-art treatment of work injuries has changed substantially. Occupational medicine programs, frequently directed by board-certified occupational medicine specialists, have integrated new information technologies with quality improvement techniques. This has produced a more effective approach to treatment of worker injuries and the prevention of long-term disability. These widely used techniques form the core of many continuing medical education programs in occupational medicine, and define a current national best practice approach to the prevention and treatment of workplace injury.¹

Despite these advances, many workers injured in Washington and other states are unlikely to benefit from the advantages of these occupational medicine approaches.

Most workers injured in Washington are treated by practitioners who devote only a small fraction of their practice time to worker injury. These physicians do not have the ability to identify and correct unsafe work practices, do not have access to specialized occupational medicine information systems, and have little or no specialized training in occupational medicine. It is not surprising then that research for this white paper reveals a substantial gap between the self-described practice patterns of these physicians and national best practices.

¹ The significant change in occupational medicine practice began in the early 1980s as computer technology became more widely available in medical practice. In 1986, the AHA's *Agenda for Change* forced introduction of quality improvement techniques to hospital departments. Professional organizations such as the American Hospital Association (AHA) and the American College of Emergency Physicians (ACEP) developed curricula to train their members in these new techniques. By 1989, occupational medicine became the most widely requested continuing education topic of the AHA. To respond to these needs the AHA published two textbooks which formed the basis of their educational efforts: *Occupational Health Services: A Guide to Program Planning and Management* (Newkirk and Jones Eds.) in 1989, and *Occupational Health Services: Practical Strategies for Improving Quality and Controlling Costs* (Newkirk Ed.) in 1993.

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Contributing to this occupational medicine expertise gap is the fact that physician education, both in medical school and in most residency training, almost uniformly fails to include instruction in the specialized issues related to injured worker treatment, return to work, and prevention of long-term disability. Understanding these educational shortcomings is critical to appreciating the challenges facing Washington. Appendix A reviews the extent and nature of these deficiencies in detail.

In order to improve the quality of injured worker treatment in Washington, more physicians need to understand the benefits for injured workers when best practices in occupational health are routinely incorporated. This white paper discusses how the proposed Centers of Occupational Health and Education can contribute to closing this expertise gap in occupational medicine.

Purpose

The purpose of this is to identify, evaluate, and prioritize options for enhancing attending physicians' occupational medicine expertise through the pilot Centers of Occupational Health and Education. As a part of the research, this paper assesses primary care providers' current knowledge and application of occupational health principles from surveying a random sample of Washington physicians who treat worker injuries. The paper compares the practice behaviors of these Washington physicians to other provider groups with expertise in occupational medicine to identify areas where knowledge or practice patterns can be improved. The white paper also assesses educational approaches the Washington physicians are most likely to use.

The options identified in this white paper address the management of occupational injuries and illnesses, including return to work and prevention of long-term disability.

The recommendations in this white paper are based on:

- Survey results from a random sample of 186 physicians who treat injured workers in Washington regarding their current practice behaviors and educational practices including preferred training methods and access to technology.
- Survey results from twenty-three occupational medicine programs from throughout the United States that were identified as providing excellent occupational medical care.²

² For this paper, the project's consultants selected twenty-three specialized occupational medicine practices (from over 500 practices in 43 states which have been visited) from twenty states. This selection was based on the

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- Review of the scientific literature regarding the availability of occupational medicine training, use of treatment guidelines, and the effectiveness of clinical training and education strategies.
- Review of Graduate Medical Education Programs and Residency Curricula.
- Survey results from the Medical Directors of eight Occupational Medicine Residency Training Programs, the President of the American College of Occupational and Environmental Medicine (ACOEM) and several other physician preceptors with responsibility for occupational and family practice resident training.
- Review of current provider education and administrative processes within the State of Washington that might support current or desired behaviors of physicians or their associated medical office staffs.

Assessing Providers' Occupational Medicine Expertise

Measuring provider expertise is a daunting task. Three commonly measured areas are provider outcomes, provider training, and provider practice behavior.

Of these three areas, measuring providers' clinical outcomes is the least useful measure for this white paper. Comparing outcomes in a population where each provider treats only a very small number of patients (the situation in Washington Workers' Compensation) is extremely difficult to perform and receive statistically valid results. In addition, outcome comparison is diagnosis-specific, which leaves out certain provider groups.

Provider training is extremely important. Board-certified occupational medicine specialists direct 65% of the best national occupational medicine clinics, while they direct only 3% of the Washington practices surveyed. A work-injury health system must contain providers with a variety of backgrounds: neurosurgeons, chiropractors, orthopedists, family practitioners, and others. Focusing on medical residency training alone misses this point. Classifying providers based on past training is open to preconceived biases and undervalues present practice behavior.

This paper bases its conclusions largely on present provider behavior as measured by a random survey of Washington physicians — how does physician behavior affect reduction in long-term disability from injury, encourage identification and

program's clinical processes, data management and medical leadership. As a rule, the programs were community-based, non-academic practices specializing in occupational medicine. Common practice behaviors of these programs are considered for this white paper to be "national best practices."

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correction of the cause of injuries, and enable safe return to work. Specifically, this white paper assesses seven key indicators of this behavior:

1. Notification of the employer of worker injury.
2. Use of treatment protocols and guidelines.
3. Use of standardized work restrictions.
4. Ability to identify job (ergonomic) risks.
5. Ability to perform case management.
6. Specification of work restrictions rather than removal from work when an injured employee is unable to perform his or her regular job.
7. Use of specialized occupational medicine information systems.

What's the Current Status?

In Washington, few providers focus exclusively on work injuries. The medical providers who treat over 80% of all workers treat fewer than ten new work injuries per year. In that regard, Washington is like most states.^{3 4 5 6 7 8}

The average provider treating work-related injuries in Washington devotes only 10% of his or her practice to occupational medicine; the average national best practice devotes 100% of its practice to occupational medicine. Given the difference in focus between Washington providers and the national best occupational medicine programs, it is not surprising that there are significant behavior differences between these two groups in seven key areas related to the management of occupational injuries, return to work, and prevention of long-term disability.

Survey research for this white paper comparing the random sample of 186 Washington providers to the twenty-three selected national occupational medicine practices found the following differences:

³ Frazier, Linda et al., "Developing Occupational and Environmental Medicine Curricula for Primary Care Residents: Project EPOCH-Envi," Journal of Occupational and Environmental Medicine. 1999; 41:8; 706.

⁴ Leigh JP, Markowitz SB, Fahs M, Shin C, Landrigan PJ, "Occupational Injury and Illness in the United States: Estimates of Costs, Morbidity and Mortality," Archives of Internal Medicine. 1997; 157:1557-1568.

⁵ Rosenstock L, Rest KM, Benson JA Jr, et al., "Occupational and Environmental Medicine: Meeting the Growing Need for Clinical Services," New England Journal of Medicine. 1991;325:924-927.

⁶ American College of Physicians, "Occupational & Environmental Medicine: The Internist's Role," Annals of Internal Medicine. 1990;113:974-982.

⁷ Cordes DH, Rest KM, Hake JC, "Occupational Health a Core Discipline of Family Medicine," Journal of Family Practice. 1982;151:1193-1194.

⁸ Casotrina JS, Rosenstock, "Physician Shortage in Occupational and Environmental Medicine," Annals of Internal Medicine. 1990;113:983-986.

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1. Notifying the employer of injury.* One of the first steps in managing an injured worker's care is notification of the employer. 96% of the national occupational medicine practices notify the employer about the injury by computer, telephone or fax; 19% of the Washington practices do.

2. Using treatment protocols and guidelines. Appropriately developed treatment protocols can be particularly helpful in tailoring care to fit the unique needs of injured workers and have been shown to help improve worker outcomes. [Treatment guidelines and protocols are discussed in detail in Deliverable #2.] 91.3% of the national occupational medicine practices use treatment protocols; 66% of the Washington practices do.

3. Using a standardized work restriction form that is given to the injured worker after each visit.* Standardized work restrictions are important to assist in safe, accurate work placement after injury. 100% of the national occupational medicine practices provide work restrictions on a standardized form; 41% of the Washington practices do.

4. Making worksite (ergonomic) evaluations.* Worksite evaluations are often essential in determining the specific ergonomic cause and treatment of a work-related injury. 100% of the national occupational medicine practices make worksite evaluations; 20% of the Washington practices do.

5. Providing case management. Case management, particularly when it is directed toward avoiding preventable delays in treatment and improving the success of return to work, is a key component of occupational medicine programs. 83% of the national occupational medicine practices perform case management; 61% of the Washington practices do.

6. Providing work restriction to workers unable to perform their regular job, instead of removing the worker from work.* One problem for medical providers who infrequently treat injured workers is what to do when an injured worker has work limitations that prevent the worker from returning to his or her previous job. Should the provider give the worker written work restrictions that allow safe alternative work placement to occur if such work is available and in accordance with labor-management agreements? Or, should the provider remove the worker from work? 100% of the national occupational medicine practices routinely provide work restrictions that enable safe alternative work; 45% of the Washington providers remove the worker from work.

* The responses reported here are based on self-reported data. Operations managers in L&I's claims management units expressed some doubt about the Washington provider numbers. Based on their experience dealing with claims, the number of Washington providers demonstrating this behavior might be lower than reported here. Based on this input, the gap between Washington providers and model OH programs could be even larger than demonstrated here.

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7. Use specialized information systems. Specialized occupational medicine information systems provide injury tracking and case management capabilities. 96% of the national occupational medicine practices use such systems; 11% of the Washington providers do. [Information systems are discussed in further detail in Deliverables #4 and #5.]

Can education alone enhance the knowledge and skills of Washington's attending physicians to the level of those seen in the nation's best occupational health practices?

The research just cited demonstrates a significant gap in occupational health knowledge and service delivery between Washington providers and national occupational medicine practices. This white paper concludes that there are two major reasons why education alone will not eliminate this gap: provider philosophy and provider resources.

Provider philosophy: Not all providers view their role in the treatment of workers in the same way. One key difference is the degree to which providers feel they must play a "social role" ⁹ in the system. This was demonstrated above where 45% of Washington physicians were found to remove the worker from his job rather than providing the worker with work restrictions and allowing safe alternative work placement to occur if available, and in accordance with labor-management agreements. Ironically, the more training and expertise the provider has about the worksite, the less likely he or she is to remove the worker. Providers trained and experienced in occupational medicine, as a general rule, recognize that the return to work decision is a labor-management decision and that the provider's role is to objectively delineate work restrictions. Less experienced and trained providers make a more "social" decision, which paradoxically reduces the worker's income and increases the likelihood of long-term disability.

Although education about national best practices can change some providers' behavior, other providers will have a strong belief in the importance of their social role and be unlikely to relinquish it. It is important to recognize and accommodate this fundamental difference in philosophy.

Provider resources: Two identified best national practices (specialized occupational medicine information systems and the ability to perform worksite evaluations) will

⁹ In this context, we consider a social role to be when the provider considers it his or her obligation to move beyond the role of assigning work restrictions, determining suitable work placement, and identifying workplace hazards. A physician would be entering a social role when the physician concludes that the physician — not labor and management — has the final determination in the establishment of work rules and limited duty policy that applies to the worker.

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probably never be provided by all practices regardless of educational efforts. Providers treating injured workers have different types of expertise. Certain specialists are best left to concentrate on their specialty. For example, it will rarely be the optimum use of medical resources to have a neurosurgeon reviewing a workplace for risks. Other resources, such as information systems, may be too expensive for practices that see only an occasional injured worker. Educational efforts will not make these resources appear. It will be more efficient to consolidate these functions in a COHE rather than require all providers to offer these more specialized occupational medicine services.

What educational methods are likely to work with Washington providers?

Survey research indicates that lectures are the preferred method of education for 76% of physicians who direct practices. Research on mentoring and training shows that lectures that enhance participant activity and provide the opportunity to practice skills are the most effective method for changing professional practice.¹⁰ [Appendix B provides a detailed discussion of educational methods that might be used to improve practice behaviors in Washington providers.] Newer technologies, such as the Internet, are preferred by only a small percentage of providers.

What is important in education is the role of the "respected onsite colleague." That is, a provider in the community who is respected by the community for his or her medical expertise in the field in question. Research shows that the combination of a respected onsite colleague and care pathways developed in collaboration with physicians in the community improve health outcomes; guidelines alone do not achieve the same results.¹¹ Studies show that when guidelines are passively distributed and are not linked with feedback from a respected colleague, they have little impact on actual physician practice. Physicians are conditioned through their training to respect the opinion of Physician Preceptors.¹² The medical director of the COHE is envisioned to fill this role.

Physician practice patterns do not change just because of continuing medical education or access to specific guidelines. This is true for physicians from all specialties, and is not unique to occupational medicine.^{13 14} A theoretical learning model, called "Awareness to Adherence", proposes that there are stages of

¹⁰ Davis, D. et al, "Impact of Formal Continuing Medical Education", Journal of the American Medical Association, 1999; 282 (9): 867-874.

¹¹ Eisenberg, J. et al, *Doctors Decisions and the Cost of Medical Care*, Ann Arbor MI, Health Administration Press, 1986.

¹² Schuman S et al., "The Occupational and Environmental Medicine Gap in the Family Medicine curriculum: Five Key Elements in South Carolina," Journal of Occupational and Environmental Medicine; 1997; 39; 12: 1186-1190.

¹³ Muller KL, et al., "Acceptance and Self-Reported Use of National Occupational Medicine Practice Guidelines," Journal of Occupational and Environmental Medicine; 2000; 42; 4: 362-369.

¹⁴ Safe Work in the 21st Century: Education and Training Needs for the Next Decade's Occupational Safety and Health Personnel, Institute of Medicine, National Academy Press. 2000; 168.

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behavior a physician must go through before adherence to a particular guideline or change in practice. These are:

- General awareness
- Agreement with the basic principles
- Adoption of the new practice pattern
- Full adherence to the guideline in all applicable cases^{15 16}

Local consensus and local feedback are probably some of the larger influences on guideline adoption *and* adherence in addition to the simplicity and ease of use of the guidelines.^{17 18} The COHE has an important role to play in helping develop this consensus and in providing feedback to providers.

What Is the Desired Future State?

The goal is for the pilot project physicians to follow a practice pattern that generates the best quality medical care for Washington's injured workers.

By integrating these practice changes with improved care management and better information systems, L&I hopes to improve the quality of care for injured workers, reduce long-term disability, and reduce injury rates.

What are the Best Ways to Achieve the Desired Future State?

Research for this white paper indicates that there is a significant gap between the performance of Washington providers and best practices in occupational health delivery. Closing this gap will be difficult, because many providers have only an occasional encounter with an injured worker and will be reluctant to make significant practice changes.

Here are the steps that will help to achieve the desired future state:

A. Understand and affirm the importance of free choice for the physician and injured worker in any project design.

1. An injured worker's ability to freely choose a physician must not be jeopardized by any actions of the COHE or this pilot project. This must be

¹⁵ Muller KL, et al., "Acceptance and Self-Reported Use of National Occupational Medicine Practice Guidelines," *Journal of Occupational and Environmental Medicine*; 2000; 42; 4: 362-369.

¹⁶ Physician Phone Interviews, June-July, 2000.

¹⁷ Muller KL, et al., "Acceptance and Self-Reported Use of National Occupational Medicine Practice Guidelines," *Journal of Occupational and Environmental Medicine*; 2000; 42; 4: 362-369.

¹⁸ Schuman S. et al. "The Occupational and Environmental Medicine Gap in the Family Medicine Curriculum: Five Key Elements in South Carolina," *The Journal of Occupational and Environmental Medicine*; 1997; 39;12: 1186-1190.

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made clear to all parties. For this project to succeed, and for workers and providers to participate, worker rights must be unambiguously reaffirmed. Otherwise, workers may view the COHE as a surreptitious method of denying the worker's ability to choose freely. Providers may see the COHE as a further intrusion of managed care.

2. Recognize that provider and injured worker free choice is essential to set the stage for meaningful outcome measurements. Some providers will choose to participate with this educational effort; some will not. Some injured workers will seek care with providers who are participating; some will choose care with providers who do not. It is important to analyze whether the educational efforts outlined in this and subsequent white papers make any difference in improving care. Here are some considerations:

a. Because of the nature of injured worker medical care in Washington (i.e., providers generally treat very few workers), analyzing outcomes for individual physicians is almost impossible. Grouping physicians is important if meaningful outcome measures are to be developed. Provider choice makes grouping possible by creating a group of physicians that already have occupational health skills or are willing to develop them.

b. Worker choice itself can be a quality measure. For example, do workers preferentially treat with providers who follow the educational guidelines?

B. Build meaningful Centers of Occupational Health and Education (COHE)

In the Request for Proposal (RFP) process,

1. Establish that the COHE will meet the national best practice standards for occupational medicine.¹⁹ The COHE cannot advocate and teach this practice style unless they are doing it.

2. Insure that the COHE has recognized occupational medical leadership in the communities it will serve. Providers will listen to the COHE if the *medical* reputation and training of the physician director is accepted. Here, board certification in occupational medicine should probably be a prerequisite.

3. Make sure that the COHE is able to teach effectively in the format which most providers use best, the lecture. Ensure that the COHE training approach

¹⁹ This process defines the expected practice standards. This list should include, at least, the seven practice behaviors studied for this paper.

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enhances participant activity and provides the opportunity to practice skills to help change professional practice. Also make sure that the COHE is prepared to produce educational material in alternative formats.

4. Require that the COHE have the ability to perform case coordination and integrate its efforts with the staff from L&I. [For further information, see Deliverable #2].

5. Require that the COHE have the ability to conduct ergonomic worksite assessments, and identify and propose solutions for job hazards.

6. Require that the COHE have the ability to provide specialty occupational medicine treatment to injured workers.²⁰

7. Require that the COHE have the ability to analyze data concerning workplace injury trends and integrate data management with the L&I information system. [For further information see Deliverables #4 and #5].

C. Encourage medical providers to adopt best practice behaviors.

In this process, understand that providers' responses to the educational effort will vary. Providers will generally respond in one of four ways: a) they will oppose the efforts because they have a different practice philosophy or believe that the educational effort has a hidden agenda which will negatively affect their practices; b) they won't pay attention because they are too busy or feel that the educational effort will have no net positive benefit; c) they will embrace the education but will minimally incorporate it into their practice; or d) they will believe that the educational effort is sound and will want to participate in improving care for injured workers.

The following steps should be taken to encourage provider participation:

1. The target practice behaviors should be identified. At a minimum, these should include: notifying the employer of injury, providing work restrictions on a standardized form, following treatment guidelines, providing work restrictions to workers who are unable to do their present job instead of removing the worker from work, and communicating effectively with the L&I staff and the COHE.

2. Provide incentives for physicians to improve their practice behaviors. The consensus among all the physicians interviewed for this white paper was that

²⁰ One important medical service that the COHE should provide is the diagnosis and treatment of occupational illnesses, such as occupational lung disease. These illnesses are commonly mis-diagnosed or diagnosed late in the course of the illness.

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in the absence of sufficient incentives to participate in re-education and monitoring of care after CME, physician practice patterns would not change or not change substantially. [Incentives will be discussed in detail in the white papers for Deliverables #2 and #6.]

3. Improve the ease of use of treatment guidelines and standardize key administrative functions (employer notification, use of work restrictions, etc.).

4. Develop core curricula that can be presented in lectures that enhance participant activity and provide the opportunity to practice skills as well as through information channels that will likely be used more in the future (Internet).

Appendix A

Deficiencies of Provider Education in Occupational Medicine

Historically, medical school has devoted very little time to training in workers' compensation or disability management.^{21 22 23 24} This deficiency has been identified for over two decades, yet the medical curriculum has been slow to respond.²⁵ It is not anticipated that this situation is likely to change in the near future because so many other topics are competing for limited medical school curriculum time. In addition, since the majority of medical schools (about 75%) do not have associated occupational medicine programs, they often do not have access to faculty capable of teaching occupational medicine.^{26 27 28}

In the past, this problem was further exacerbated during residency training; most residency programs (with the exception of occupational medicine residencies) had little, if any, teaching about, exposure to or focus on injured workers. In the last five years, this has begun to change. Accreditation criteria for family and internal medicine residencies now require some occupational medicine training.²⁹ Training in these residency programs is still quite variable in quality due to time constraints and the lack of qualified instructors.^{30 31 32 33 34 35} Residency programs in emergency medicine and orthopedic surgery have no specific requirements for occupational medicine training.³⁶

²¹ Goldman R, Rosenwasser S, Armstrong E, *Incorporating an Environmental/Occupational Medicine Theme Into the Medical School Curriculum*, Journal of Occupational & Environmental Medicine. 1999;41:1;47.

²² Institute of Medicine and Pope AM, Rall DP, eds., *Environmental Medicine: Integrating a Missing Element into Medical Education*. Washington DC: National Academy Press; 1995.

²³ Phone Interviews with Occupational Medicine Residency Directors & Physicians; July 2000.

²⁴ Koh D, "Occupational and Environmental Medicine in the Family Medicine Curriculum," Journal of Occupational and Environmental Medicine. 1998;4:6; 515.

²⁵ Frazier, Linda et al., "Developing Occupational and Environmental Medicine Curricula for Primary Care Residents: Project EPOCH-Envi," Journal of Occupational and Environmental Medicine. 1999;41:8;706.

²⁶ Frazier, Linda et al., "Developing Occupational and Environmental Medicine Curricula for Primary Care Residents: Project EPOCH-Envi," Journal of Occupational and Environmental Medicine. 1999;41:8;706.

²⁷ Physician Phone Interviews, June-July, 2000.

²⁸ *Safe Work in the 21st Century: Education and Training Needs for the Next Decade's Occupational Safety and Health Personnel*, Institute of Medicine, National Academy Press. 2000; 152-170.

²⁹ American Medical Association, Graduate Medical Education. 1999-2000.

³⁰ Frazier, Linda et al., "Developing Occupational and Environmental Medicine Curricula for Primary Care Residents: Project EPOCH-Envi," Journal of Occupational and Environmental Medicine. 1999;41:8;706-711.

³¹ American Medical Association, Graduate Medical Education Directory. 1999-2000.

³² Physician Phone Interviews, June-July 2000.

³³ Ibid.

³⁴ Physician Phone Interviews, June-July, 2000.

³⁵ Schuman S, Mohr L, Simpson, W, "The Occupational and Environmental Medicine Gap in the Family Medicine Curriculum: Five Key Elements in South Carolina," Journal of Occupational & Environmental Medicine. 1997; 39,12; 1186-1190.

³⁶ American Medical Association, Graduate Medical Education Directory. 1999-2000.

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It is interesting to note that Family Practice, Internal Medicine, and Emergency Medicine all offer certificates of special competency in Sports Medicine but nothing in Occupational Medicine. In its 1991 report, the Institute of Medicine suggested that a certificate for Occupational Medicine, similar to Sports Medicine or Geriatric Medicine, be developed for physicians who are already board certified in Internal Medicine or Family Medicine *and* have advanced training *or* experience in Occupational Medicine. This is a recommendation that the Institute and many practicing physicians still believe to be a viable training option for occupational medicine, but to date has not been made available.³⁷

Occupational Residencies

Occupational Medicine is a specialty of Preventive Medicine and one of the 24 medical specialties currently recognized by the Accreditation Council for Graduate Medical Education (ACGME). While Occupational Medicine as a professional area of expertise has been recognized since the turn of the century—when it was known as “Industrial Medicine”—it was not until 1955 that the American Board of Preventive Medicine recognized it and renamed it “Occupational Medicine.”³⁸

Today there are about 40 Accredited Occupational Medicine Residencies in the US, located in 28 states, which annually produce about 90 graduates.^{39 40} The education program for Occupational Medicine consists of three phases: the clinical phase, academic phase and practicum. However, not all residencies are accredited for all three phases, and some programs combine the academic and practicum years. Furthermore, some residencies are located in schools of public health while others are in hospital-based teaching institutions, which can contribute to variables in the resident’s training, particularly as it relates to patient care and acute injury treatment.

³⁷ *Safe Work in the 21st Century: Education and Training Needs for the Next Decade’s Occupational Safety and Health Personnel*, Institute of Medicine, National Academy Press. 2000; 152-170.

³⁸ ACOEM, “Careers in Occupational and Environmental Medicine,” www.acoem.org; 2000; 1-12.

³⁹ American Medical Association, *Graduate Medical Education Directory*. 1999-2000.

⁴⁰ *Safe Work in the 21st Century: Education and Training Needs for the Next Decade’s Occupational Safety and Health Personnel*, Institute of Medicine, National Academy Press. 2000; 152-170.

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Residency Program Comparisons⁴¹

Preventive Medicine (Occupational Medicine)	Family Practice	Internal Medicine	Emergency Medicine	Orthopedics
<p>Curricular Areas</p> <p>Clinical Phase</p> <ul style="list-style-type: none"> Care of workers in prevention, diagnosis & treatment of work disorders Evaluation of fitness of workers for normal or modified job assignments in a variety of work settings and for assessment of impairment & disability Counseling & education of workers & supervisors about work, environmental hazards, & health habits at home or work <p>Administrative – Academic Phase</p> <ul style="list-style-type: none"> Planning, administration, supervision & evaluation of broad program for the protection & promotion of health & safety of workers in the work setting, including health risk assessments, accident evaluation, and risk reduction Application of administrative & scientific principles to achieve compliance with regulations & 	<p>Curricular Areas</p> <ul style="list-style-type: none"> Human & Behavioral Health Adult Medicine Maternity & Gynecologic Care Care of Surgical Patient Sports Medicine Emergency Care Care of Neonates, Infants, Children & Adolescents Community Medicine* Care of Older Patients Care of Skin & Associated Organs Diagnostic Imaging & Nuclear Medicine Conferences Resident Research & Scholarly Activity Practice Management Electives 	<p>Curricular Areas</p> <ul style="list-style-type: none"> Ambulatory Patients Continuity Ambulatory Patients Hospitalized Patients Emergency Medicine Critical Care Subspecialty Experience Consultative Geriatric Adolescent Gender-Specific Experiences with other specialties Procedures, Technical & Interpretative Skills 	<p>Curricular Areas</p> <ul style="list-style-type: none"> Planned Educational Experiences Attendance by ER Faculty Coverage to Allow Attendance at Educational Experiences Principles of Emergency Care Principles of Injury Control & Disease Prevention Administration of ER Medicine Emergency Medical Services Physician Interpersonal Skills Physician Wellness Medical Ethics & Jurisprudence Critical Analysis of Medical Literature Two Months of Inpatient Critical Care Rotations Patient Follow-Up 50% of Training in ER by ER Faculty Pre-hospital Care Resuscitations Continuous Quality Improvement Research & Scholarly Activity Physician Wellness 	<p>Curricular Areas</p> <ul style="list-style-type: none"> Clinical Resources (sufficient variety & volume to Dx & TX) Related Areas of Instruction Continuity of Care Non-operative Outpatient Experience Progressive Responsibility Teaching Rounds & Conferences Basic Medical Sciences (Anatomy, Pathology, Bio-mechanics, use & interpretation of radiographic & other imaging techniques) Basic Motor Skills (proper use of surgical instruments & operative techniques) Research & Scholarly Activity

⁴¹ American Medical Association, Graduate Medical Education Directory. 1999-2000.

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<p>workers' compensations laws</p> <ul style="list-style-type: none"> Health & Environmental Data analysis & acquisition <p>Didactic-Practicum Phase</p> <ul style="list-style-type: none"> Environmental Physiology & Response to physical stresses e.g. heat Occupational Disease Dx & Tx Toxicology Industrial Hygiene & Environmental Control Measures Safety & Accident Investigation/ Causation Determination of Fitness for work EAPs & substance abuse treatment & rehab Health Education & Promotion Occupational Health Data Management & Analysis Management & Administration of Occ Health Programs Clinical Preventive Activities to improve health of workers & their families 				
<p>Principal Concerns of Occ Med:</p> <ul style="list-style-type: none"> Workers (assessing, maintaining, restoring or improving work-related health & matching workers to jobs) Workplace 	<p>Principles of Family Practice:</p> <ul style="list-style-type: none"> Continuity of Care <ul style="list-style-type: none"> ✓ Physician-Patient Relationship ✓ Role of the Family ✓ Healthcare System ✓ Community 	<p>Special Education Requirements:</p> <ul style="list-style-type: none"> Clinical Ethics Quality Assurance, Quality Improvement, Risk Management, & Cost Effectiveness in Healthcare Preventive Medicine* 	<p>Didactic & Clinical Education in Disorders:</p> <ul style="list-style-type: none"> Abdominal & Gastrointestinal Cardiovascular Cutaneous Endocrine, Metabolic and Nutrition 	<p>Didactic & Clinical Education in:</p> <ul style="list-style-type: none"> Adult Orthopedics Joint Reconstruction Pediatrics Pediatric Trauma Trauma Surgery of Spine (disc, spinal trauma/

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<p>(Assessment & Design of Safe Work & Work Places)</p> <ul style="list-style-type: none"> Information Mgt (analysis of work-related health data for epidemiological studies and to protect against inappropriate release of medical information) Administration (Promote the health of workers and to enhance the ability to deal with applicable regulations, agencies, etc.) 	<ul style="list-style-type: none"> ✓ Home Care ✓ Long Term Care ✓ Hospitalized Patients ✓ Integrating Care with other Providers (Specialists) Family -Oriented Comprehensive Care Patterns of Record Keeping Mechanisms for Health Promotion/ Maintenance 	<ul style="list-style-type: none"> Medical Information & Decision Making Skills Law & Public Policy Pain Management End-of-Life Care Principles of Managed Care Violence Substance Use Disorders Sports Medicine & School Health <p>Note: All IM subspecialties are required to have formal instruction in OSHA regulations, universal precautions & protection of healthcare workers.</p>	<ul style="list-style-type: none"> Environmental* Head & Neck Hematologic Immune System Systemic Infections Musculoskeletal (non-traumatic) Nervous System Obstetrics Pediatric Psychiatric & Behavioral Renal Thoracic & Respiratory Toxicology & Clinical Pharmacology Trauma Urogenital/ Gynecologic Presentations/ Symptoms Procedures/Skills 	<ul style="list-style-type: none"> deformities Hand Surgery Foot Surgery Athletic Injuries Arthroscopy Metastatic Disease Orthopaedic Rehabilitation Amputations & Post-amputation Care
<p>Subspecialties:</p> <ul style="list-style-type: none"> Public Health Occupational Medicine Aerospace Medicine Medical Toxicology 	<p>Subspecialties:</p> <ul style="list-style-type: none"> Family Practice Geriatric Medicine Family Practice Sports Medicine Geriatric & Sports Medicine 	<p>Subspecialties:</p> <ul style="list-style-type: none"> Cardiovascular Disease Clinical Cardiac Electrophysiology Critical Care Medicine Endocrine, Diabetes & Metabolism Gastroenterology Geriatric Medicine Hematology Hematology & Oncology Infectious Disease Interventional Cardiology Nephrology Oncology Pulmonary Disease Pulmonary Disease & Critical Care Rheumatology Sports Medicine 	<p>Subspecialties:</p> <ul style="list-style-type: none"> Pediatrics Medical Toxicology Sports Medicine 	<p>Subspecialties:</p> <ul style="list-style-type: none"> Adult Reconstructive Orthopedics Foot & Ankle Hand Surgery Musculoskeletal Oncology Ortho Sports Med Ortho Surgery of Spine Ortho Trauma Pediatric Orthopedics

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Residency Program Comparisons⁴²

Preventive Medicine

Occupational Med	Family Practice	Internal Medicine	Emergency Medicine	Orthopedics
Length of Residency: 3 Years	Length of Residency: 3 Years	Length of Residency: 3 Years	Length of Residency: 3 Years	Length of Residency: As of 7/00: 5 Years
100% Focus on OM & worker health.	OEM required during Community Medicine rotation, but no specifics on OM requirement.	OEM instruction to be covered when educating about Preventive Medicine but no specifics on OM requirements.	OEM not required; may be touched on under Environmental topics.	OEM not required.
Focus on acute treatment of injured workers & associated medical procedures can vary.			Excellent focus on injury treatment, albeit from a non-occupational perspective.	Excellent focus on injury treatment, and rehabilitation, albeit from a non-occupational perspective.
Workers' compensation is a focused study area but not specifically on any state's rules.	No focus on workers' compensation as a separate payer/insurer	No focus on workers' compensation as a separate payer/insurer	No focus on workers' compensation as a separate payer/insurer	No focus on workers' compensation as a separate payer/insurer

In general, occupational medicine residencies have long been recognized as not being as clinically oriented as many other residencies and may not have as much direct patient contact.⁴³ While this is not true of every occupational medicine residency, it is important to understand that the hands-on residency experience of an occupational physician may or may not be adequate preparation for the successful acute treatment of workers' compensation patients in the outpatient setting, depending on the residency program attended *and* prior medical experience of the resident. However, many occupational medicine careers are more research, administrative, or academically based and often do not require these skill sets for performance in many OM jobs.

Occupational medicine residency trained physicians are undoubtedly the best prepared of all physician specialties for handling work and environment health issues. However, because of the variations among training programs, not all occupational medicine physicians are equally prepared to treat and diagnose acute work injuries in a public, clinic-based setting. In addition, there are not enough of these physicians to replace the existing occupational physicians, let alone sufficient to meet future needs.⁴⁴

⁴² American Medical Association, Graduate Medical Education Directory. 1999-2000.

⁴³ Safe Work in the 21st Century: Education and Training Needs for the Next Decade's Occupational Safety and Health Personnel, Institute of Medicine, National Academy Press. 2000; 152-170.

⁴⁴ Safe Work in the 21st Century: Education and Training Needs for the Next Decade's Occupational Safety and Health Personnel, Institute of Medicine, National Academy Press. 2000; 152-170.

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One group filling the supply/demand gap for occupational medicine physicians is physicians who enter occupational medicine from another specialty — commonly surgery, orthopedics, physical medicine, or emergency medicine.⁴⁵ These physicians often become aware of occupational medicine in mid-career through their medical experience treating work injuries. Physicians who transition into occupational medicine from other specialties are most likely to end up in clinical/corporate practice, where patient care and the treatment of work injuries is a significant component of their practice.

The level of training these physicians may need regarding work injuries can be quite variable, depending on their years in practice, the specialty they are transitioning from, how much self-study they have undertaken, and how much of their medical practice is devoted to occupational medicine. And, since most physicians who transition into occupational medicine do so mid-career, returning to a full-time student status to pursue occupational medicine board certification is usually not appealing or financially possible. The end result is that there are many physicians who are working full- or part-time in the field of occupational medicine who are not residency trained or board certified in occupational medicine.

Post Residency Training

A variety of organizations provide formalized post residency training, but their courses are generally not well advertised or their value understood by non-occupational physicians.⁴⁶ And, until recently, many of the course offerings have not focused on actual treatment guidelines or the specifics of acute patient care for work-related injuries. The following chart shows organizations that are probably the most relied on by OM physicians, and some of the training that is available:

Organization/Topics-Focus	Frequency and Format
Universities with OM Residencies and Courses <ul style="list-style-type: none">• OM Residencies• OM Short Courses (offered by some but not all Residency Programs)• OM Courses	<ul style="list-style-type: none">• 1-3 required residency phases for accreditation.• Short Courses are very condensed versions of OM Residencies and designed for employed physicians who are transitioning into OM; usually 1-4 weeks in length.• OEM Courses can range from one day to an entire quarter or semester. They offer a variety of OM health & safety topics but often little workers' compensation injury treatment content.• Many universities offer a variety of OM courses & topics through distance learning venues.

⁴⁵ ACOEM, "Careers in Occupational and Environmental Medicine," www.acoem.org; 2000; 1-12.

⁴⁶ ACOEM, "Careers in Occupational and Environmental Medicine," www.acoem.org; 2000; 1-12.

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<p>ACOEM (American College of Occupational & Environmental Medicine)</p> <ul style="list-style-type: none"> • OEM Basic Curriculum 1-3 • MRO Training Course • Impairment & Disability Evaluations Course • OEM Board Review • OEM Self-Assessment Review • American Occupational Health Conference (AOHC) • State-of-the-Art Conference 	<ul style="list-style-type: none"> • Provides distance and Internet-based learning opportunities. • Series of three, 2-day courses on OM basics for primary care. • Three different MRO courses to train MDs to comply with substance abuse regulations. • Two courses to train MDs to be independent evaluators for WC and other claims; prepares MDs to take the IME certification exam. • Two-day preparatory Board Review Course • Self-study guide for OM Boards • National 1-week conference held in the spring of each year; co-hosted with AOHN; offers wide variety of OH & WC topics • Annual Meeting-2 ½ day conference format held in the fall (Oct); predominately geared towards physicians, with updates & training on OH & WC topics.
<p>OSHA (Occupational Health & Safety Administration)</p> <ul style="list-style-type: none"> • 13 Regional Training Institutes & Numerous Short Courses • Train-the-Trainer Outreach Grants 	<ul style="list-style-type: none"> • Focus on OSHA policies & standards, hazard recognition and hazard abatement techniques. • Offer over 700 courses/year in varying lengths: 14 days, 7 days with 4-5 day course being the model. • CEUs available for most courses, which are attended by a wide variety of safety and health professionals from the private and public sectors, with public sector being the primary customer of these courses. • Recently course demand has exceeded OSHA's capabilities.
<p>NIOSH (National Institute of Occupational Safety & Health)</p> <ul style="list-style-type: none"> • 15 University-based Regional Training Centers 	<ul style="list-style-type: none"> • Offers wide variety of OH coursework, including safety, prevention, and work injuries/workers' compensation. Mostly available only to OM residents or OH nurses and only available at the 15 regional sites; not all courses are universally available. • Videos and texts available for purchase.
<p>SEAK, Inc.</p> <ul style="list-style-type: none"> • Business School for Physicians • Law School for Physicians • How to be an Effective Medical Witness • How to be a Successful Independent Medical Examiner • Negotiating Skills for Physicians 	<ul style="list-style-type: none"> • Business, legal, disability evaluations & IMEs—training for physicians to be able to perform in the medical & legal worlds of difficult workers' compensation cases & final case determinations. • Courses offered 2/year in a conference setting with lecture/interactive format • Also offer Distance Learning Products

The American College of Occupational and Environmental Medicine (ACOEM) on average sponsors between 25-30 educational learning opportunities in any given year that reaches thousands of participants (physician and non-physician). It also jointly sponsors more than 100 educational activities, live and via distance learning.⁴⁷ Combined with the many programs offered by occupational medicine residencies and other university programs, there appears to be a sufficient quantity and venue of continuing education activities available for physicians.⁴⁸ This training, by and large, is geared towards physicians who are practicing in OM and serves as Continuing Medical Education (CME) required for maintenance of licensure and recertification. The programs are not necessarily designed to meet the needs of a general practitioner or internal medicine physician with little formal education in OM.

⁴⁷ ACOEM, "Careers in Occupational and Environmental Medicine," www.acoem.org; 2000; 1-12.

⁴⁸ *Safe Work in the 21st Century: Education and Training Needs for the Next Decade's Occupational Safety and Health Personnel*, Institute of Medicine, National Academy Press. 2000; 168.

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ACOEM is also in the process of developing an acute work injury short course designed for physicians of any specialty who are providing initial, acute work injury treatment. It would be divided into modules by body part, and be delivered over a 1-2 day course (per module) at several locations around the country. Physicians could attend as many of the modules as they wish. Courses would be on the acute treatment of the most frequent work injuries: musculo-skeletal, lacerations, injuries to the extremities (hand/foot), eye injuries, burns, and cumulative trauma disorders.

The anticipated format for these courses is an interactive CME format, which relies on practice sessions aimed at hands-on skill development rather than using the traditional lecture style format. The sessions would be led by a physician-preceptor who will briefly review treatment guidelines and quickly move to case review, to engage the physicians in appropriate, hands-on learning. The courses should be developed and available by the summer of 2001.⁴⁹

Provider Education in Washington

The State of Washington through the Department of Labor & Industries (L&I) provides a wealth of training and resource materials to its workers' compensation providers that is perhaps one of the best in the nation in terms of content and availability. In fact, Washington is one of the few states to address provider education beyond the basics of required billing and coding for compliance with state rules, and has sought out some of the leading national providers of occupational health and disability continuing education to provide focused provider seminars that are customized to the workers' compensation environment in Washington.

Currently, provider education is not a requirement to be an approved provider in the state of Washington. Rather, provider education is offered and promoted as a service of L&I to assist providers in understanding Washington's workers' compensation system and how to provide care that is more OM based.

Training and resources provided by L&I that are available to Washington providers:

Topic	Frequency and Location	Target Audience
Reducing Your Practice Headaches: Workers' Compensation Tips for Treating Physicians	Twice/year Seattle & Tukwila	Physicians, chiropractors, physician extenders and their office staffs
General Billing Seminar & Specific Billing Instructions	Multiple dates/locations offered each year	Billing staff and specific provider types at each session MDs, DOs, PTs, DCs, and their billing staffs
IME & Impairment Rating Produced with SEAK, Inc.	Every two years/Seattle	All approved examiners, panels, etc

⁴⁹ Physician Phone Interviews, June-July, 2000.

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Chiropractic Consultant	Once every other year/Tukwila	DC who want to be chiropractic consultants
Occupational Low Back Pain—The Search for Effective Conservative Care	2-Day Seminar in Seattle	Non-surgical physicians, physician extenders, PTs & OTs
Chiropractic IMEs	Once every other year/Tukwila	DCs, Chiropractic consultants, etc

In addition to these courses, there are a variety of written guides and resources available to the physicians and their staffs, along with two extensive Internet web sites that provide one of the most in-depth web resources on just about any aspect of workers' compensation. There is also a designated provider page (although some portions of this page had not been updated in two years). Some of the written materials available are:

- Routine Provider Bulletins and Updates;
- Attending Doctors' Handbook (developed in conjunction with ACOEM) which includes free 3 hours of Category 1 CME credits when self-test is completed;
- Doctor's Desk Reference on Early Return to Work;
- Medical Examiners Handbook;
- Chiropractic Physician's Guide
- Medical Treatment Guidelines, previously published in Provider Bulletins, are available upon request;
- Preventing Claims Problems: A Guide for Chiropractic Physicians

Provider education appears to be a priority for the state of Washington and one that goes well beyond claims filing, billing, and coding. The existing courses and training materials developed by L&I provide an excellent foundation for any future provider education offered through the COHE or for consideration as a required element for approved provider status. Courses are generally well attended and well received, but it is not known to what extent attendees alter their practices or administrative patterns after attending a course. L&I has substantial records now, and is beginning to analyze its CME credits and attendance records to determine if there has been an impact on altering participants' practice or administrative patterns. L&I's Education department is not large and any expansion of its activities will probably require additional or reallocated resources.

Appendix B

Mentoring and Training Strategies

According to the scientific literature, the following mentoring and training strategies are most likely to be effective in improving physician practices *and* improving patient outcomes.

1. Opinion Leaders plus Clinical Guidelines- considerable evidence shows that resident, local colleagues along with community-based guidelines yield improved patient outcomes. The combination of a respected onsite colleague and care pathways developed in collaboration with physicians in the community has been shown to improve health outcomes. Guidelines alone will not achieve the same results. Studies show that when guidelines are passively distributed and are not linked with feedback from a respected colleague, they have little impact on actual physician practice. Physicians are conditioned through their training to respect the opinion of Physician Preceptors.⁵⁰ This was further substantiated by every physician interviewed and has been a common experience of occupational health programs that have attempted to work with their hospital's ER physicians to alter their care practices to be more consistent with the occupational health program's.

The research and physician interviews also indicate that physicians are more likely to use guidelines and alter their practice patterns if they are provided with data that demonstrates the ineffectiveness or less desirable outcome of current practices compared to the proposed guidelines or pathways. This point becomes critical when you consider that most physicians have no frame of reference in workers' compensation or occupational medicine. If physicians in general do not easily change practice patterns for common, group-health conditions, the education, monitoring, reinforcement, and incentives to learn OM will potentially need to be even greater, particularly for physicians with a low volume of work injuries in their practice.

The research also shows that guidelines are more likely to be used if they reflect input from community physicians who will use the resource. Since L&I has already used a community-based, inclusive approach in the development of its work injury treatment guidelines, acceptance and use of these guidelines are more likely; when combined with L&I rules

⁵⁰ Schuman S et al., "The Occupational and Environmental Medicine Gap in the Family Medicine curriculum: Five Key Elements in South Carolina," Journal of Occupational and Environmental Medicine; 1997; 39;12: 1186-1190.

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regarding authorization of services and payment, use could become almost guaranteed.

2. Interactive Continuing Medical Education (CME)- interactive CMEs rely on practice sessions aimed at hands on skill development rather than using traditional lecture style formats. The current research indicates that interactive CME sessions are effective in improving physician practices and, in some instances, improving patient outcomes. This was the method preferred by the physicians interviewed to teach practicing physicians.
3. Reminders/Reinforcement- reminders have also been found to be an effective method to prompt the physician to practice according to recommended guidelines. Reminders consist of some type of prompt regarding some specific action that the physician should take with a patient. In the studies, e-mail prompts regarding preventive screenings or measures have been used to remind physicians of medical procedures in accordance with guidelines such as mammography screens for women over 40. The reminders prompt physicians to implement clinical guidelines with less “authoritative” interventions that nonetheless have been found to be effective.
4. Academic Detailing or Outreach Visits-this teaching method consists of a clinician visiting the physician at the physician’s office. A “detail” person or someone considered to be an expert on the subject visits with the physician and reviews appropriate treatment guidelines, using guides to assist with treatment decision, medication prescription, health promotion, etc. This is a variation of methods 1 and 2 discussed above, but occurs in the physician’s office rather than a “structured” learning environment. The studies conducted to date have found this to be one of the more effective teaching methods.

Promising mentoring and training methods with limited research:

5. Educational Materials for Physicians- when educational materials are presented to physicians without interactive learning from a respected physician preceptor, physicians are less likely to alter their practice patterns. However, from the research conducted to date, there appears to be some variance in the use and effectiveness of this method based on physician age. A recent survey of 1,400 physicians found that older physicians are more like to use reading, listening to audiocassettes, and individual (vs. group) CMEs, whereas younger physicians are more likely to use group (vs. individual) CMEs. Because older physicians tend to use individual CMEs more than younger physicians, who predominately use group CMEs, older physicians tend to spend more time on CMEs than younger physicians.

Phone interviews with physician educators indicated that this would *not be* a preferred method for initial instruction in OM. It might be one of many

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follow-up instructional methods, but should not be considered as a primary educational effort if a consideration is how effective the method will be in changing physician practice patterns. This method would heighten awareness but was not seen as a likely method to move physicians through all steps of the “awareness to adherence” model.

6. High Technology Learning- use of high technology (satellite/Internet-on-line/CD-ROM) training is relatively new for all professions, and physicians are no exception. Access to or ownership of computers, delayed and difficult reception, and resistance to technology have been some of the principal obstacles to learning identified by the research. However, advances and changes in technology indicate that this is a very dynamic area, and today's limitations may be minimal or non-existent tomorrow. As the Internet and computer-based learning move out of their infancy, technology will undoubtedly play an increasingly important and viable role in continuing medical education.
7. Distance Learning- a close cousin of high technology, distance learning combines on-site education with a self-paced, computer-based curriculum that can combine audio, print, video, and the Internet, and it requires students on campus for limited periods of time. This is a relatively new learning method and there is limited but promising data on its use and effectiveness. The success of ACOEM and the University of Wisconsin's distance learning programs are two of the most frequently cited examples of the potential for this method to train and certify the many practicing but not formally trained OM professionals.

Here are some examples of distance learning technologies:

- Virtual Training: most often used to enhance and support real-work training by replicating real-life situations. With life-like, 3-dimensional training, the learner can learn without risking potential dangers to themselves or others. Flight simulation for pilots, mining or lab simulators are some common examples of this type of training.
- Internet Video Conferencing: allows for the digital transmission of voice and video over the Internet. Participants receive transmission through their desktop computer and have the ability to communicate synchronistically. Because it is “live” it requires availability at pre-established times. However, strengths of this medium have been cited as convenience, good accessibility, interactivity, and economy.
- CD-ROM: is an upgrade to an audio compact disc (CD), which stores computer readable programs, images, and digital audio data. They can store large amounts of information, can be interactive, allow the student to use at their convenience and learn at their own pace (repeat sections as desired). Disadvantages are they cannot be erased or modified. New discs with updated information must be issued.

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- Interactive Videos (IVD): is the CD laser version of earlier 35-mm training films. It shares similar strengths and weaknesses to the CD-ROM.
- Teleconferencing: describes a wide variety of mediums and includes: audio (connecting participants through the phone), audiographics (adds a visual component through the fax or copier), video (transmission of voice and image over phone lines), and computer interaction through computer networks where instructor and student correspond primarily through e-mail.
- Computer Managed Instruction (CMI): allows the learner to gradually work through training modules at his or her own pace. Based on performance and skill mastery they can move forward or backward through various modules. Besides being self-paced it does not require travel or absence from work, and can be self-scheduled.

Despite their promise, particularly for training working physicians from non-OM backgrounds, based on a review of the literature and interviews with practicing physicians it is not anticipated that distance learning or high technology will replace some of the more traditional approaches to educating physicians, at least in the first or initial phases. More studies are needed to measure their effectiveness and the performance of their "graduates" to those of traditional programs. This was substantiated by all of the physicians who were interviewed, who all felt that the teaching of acute OM injury guidelines and the supporting decisions, particularly to physicians with little or no OM training, would fundamentally require a physician leader to precept the training, and some method to monitor post training performance and provide meaningful, timely feedback.

Least effective physician education methods:

1. Feedback Based on Audits- the literature and a consensus of physician interviews indicates that the effectiveness of feedback based on audits varies depending on how the audits are conducted and who provides the feedback. Feedback on chart audits, when combined with education by a respected local colleague, was found to be statistically significant in altering physician behavior. Otherwise, there was little or no change in physician practice pattern.
2. Didactic CMEs- didactic or traditional lecture formats have been found to be ineffective in changing physician practice patterns. This method of training is less effective because of its passive nature. Active learning techniques that feature interaction between instructor and physician and application of what is learned to "day-to-day" practice are considered more effective.

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3. Guidelines without Opinion Leaders- there is limited but mixed research that indicates when guidelines are distributed without a supporting physician leader; they may influence some but not many physicians to alter their behavior. With no one to consult or ask questions, physicians are less likely to accept and adhere to guidelines in the absence of personal interaction with a respected physician colleague.

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Appendix C

Thoughts on Educational Content Issues

Educating Physicians

While the supply of physicians who have certification or some post residency training and experience in occupational medicine has improved over the last decade, the majority of patients with work-related injuries are still treated by family practitioners or emergency physicians. Neither specialty has significant formal training in workers' compensation, disability management, and occupational medicine.

As L&I and the pilot Centers of Occupational Health and Education consider the content of training programs for these physicians, here are some key areas for inclusion:

Primary Prevention (reducing injuries and illness)

- Reporting of sentinel injuries or clusters of injuries or illnesses to the Centers of Occupational Health and Education.
- Centers of Occupational Health and Education's worksite hazard evaluations and safety recommendations, coordinated with L&I. These would be triggered by a treating physician's assessment of worker illnesses or injuries.

Secondary Prevention (reducing disability)

- Early medical diagnosis and treatment within the first several weeks before disability risk begins, especially during the first 3-8 weeks.
- Early service coordination that is well matched with the injury severity and disability risk factors. This should emphasize timely communication between the doctor, worker, employer representative, and L&I claims staff.
- Early healthcare provider communication with employers and, if possible, with safety personnel to develop modified duty work that is consistent with the workers' functional capacity.
- Timely consultation with or referral to an appropriate specialist if problems occur, such as, difficulty making a diagnosis, slow medical progress, or difficulty with return to work efforts.
- Treatment plan that includes a return to work plan that is communicated clearly to the worker, employer, worker representative, and L&I claims staff.

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- When appropriate, early ergonomic assessment by the Center to encourage improvements in work routine or workstation to facilitate safe, stable return to work.

In addition to these topics, instructions should include administrative issues related to workers compensation, such as:

- Fundamentals of workers' compensation in Washington
- Initiating a workers' compensation claim
- Treating patients in workers' compensation
- Medical and surgical guidelines
- Impairment ratings
- Billing for services

All of these elements are currently covered in the L&I's *Attending Doctor's Handbook*, which is designed as a self-study course.

Educating physicians is only the first step in creating and sustaining significant change in practice patterns. Other elements will need to be instituted if global physician practice patterns are to be fundamentally changed.

Educating Physicians' Staffs

It is also important to note that the physician's practice patterns, while perhaps the most important variable for the purposes of this paper, are not the only variable that impacts injured worker care or outcomes. Support functions, which can be performed by office or other clinic staffs, are also important. Some examples of critical administrative functions that these personnel can provide are:

- Verification of injured workers' correct employer and state fund, self-insured, or retrospective group rating;
- Initiation and verification of accuracy and completion of Report of Industrial Injury or Occupational Disease;
- Prompt scheduling of first treatments;
- Prompt communication with the employer/carrier about the injury and subsequent follow-up care;
- Patient tracking (particularly of time off work and change in providers) and communication of "no-show" or "missed" appointments;
- Prompt scheduling and communication of patients who are being referred to specialists;
- Patient education: providing the patient with basic information about Washington's Workers' Compensation system and answering basic questions about WC claims and the patient's injury/work restrictions or medications; and

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- Verification that diagnosis and coding and physician notes are consistent with the state's WC billing and coding rules.